CLAIMS

1. A method for estimating blood pressure (BP) using photoplethysmogram (PPG), the method comprising a processor implemented steps of:

capturing photoplethysmogram (PPG) signal using a PPG sensor;

preprocessing the PPG signal using a preprocessing module;

extracting one or more features from a plurality of features of the preprocessed PPG signal, wherein the one or more features are extracted from the preprocessed PPG signal based on linear correlation of each of the plurality of features with respect to a ground truth value of the BP;

creating a training model for estimating the BP using the one or more features of the PPG signal and the ground truth value of the BP;

generating a BP distribution using the training model, wherein the BP distribution is part of a set of BP distributions generated from different subjects;

rejecting one or more BP distributions out of the set of BP distributions based on a predefined criteria, wherein the predefined criteria includes clustering the estimated BP distributions and rejecting those BP distributions with i) multiple equally dominant clusters, ii) two clusters that are too far apart, or iii) unacceptable cluster information; and

post-processing the one or more rejected BP distributions to provide a statistical average of an estimated blood pressure.

2. The method according to claim 1, wherein the training model is created using linear regression.

3. The method according to claim 1 wherein a half range-mode is used for calculating the statistical average.

4. The method according to claim 1, wherein the step of preprocessing include noise removal, band pass filtering and baseline correction.

5. The method according to claim 1, wherein the PPG sensor is a pulse oximeter or a smartphone camera.

6. The method according to claim 1, wherein the plurality of features of the PPG signal are chosen from a time domain signal in such a way that the chosen features are the PPG sensor independent.

7. A system for estimating blood pressure (BP) using photoplethysmogram (PPG), the system comprising:

a photoplethysmogram (PPG) sensor configured to capture photoplethysmogram (PPG) signal;

a memory; and

a processor in communication with the memory, the processor further comprising:

a preprocessing module configured to preprocess the captured PPG signal;

a feature selection module configured to extract one or more features from a plurality of features of the preprocessed PPG signal, wherein the one or more features are extracted from the preprocessed PPG signal based on linear correlation of each of the plurality of features with respect to a ground truth value of the BP;

a training model generation module configured to create a training model for estimating the blood pressure (BP) using the one or more features of the PPG signal and the ground truth value of the BP;

a regression module configured to generate a BP distribution using the training model, wherein the BP distribution is part of a set of BP distributions generated from different subjects; and

a post-processing module configured to reject one or more BP distributions out of the set of BP distributions based on a predefined criteria, wherein the predefined criteria includes clustering the estimated BP distributions and rejecting those BP distributions with i) multiple equally dominant clusters, ii) two clusters that are too far apart, or iii) unacceptable cluster information, and wherein the post processing module further configured to provide a statistical average of an estimated blood pressure.

8. The system according to claim8, wherein the PPG sensor is a pulse oximeter or a smartphone camera.

9. One or more non-transitory computer readable information medium having embodied thereon a computer program for executing a method for estimating blood pressure (BP) using photoplethysmogram (PPG), wherein the method comprises:

capturing photoplethysmogram (PPG) signal using a PPG sensor;

preprocessing the PPG signal using a preprocessing module;

extracting one or more features from a plurality of features of the preprocessed PPG signal, wherein the one or more features are extracted from the preprocessed PPG signal

based on linear correlation of each of the plurality of features with respect to a ground truth value of the BP;

creating a training model for estimating the BP using the one or more features of the PPG signal and the ground truth value of the BP;

generating a BP distribution using the training model, wherein the BP distribution is part of a set of BP distributions generated from different subjects;

rejecting one or more BP distributions out of the set of BP distributions based on a predefined criteria, wherein the predefined criteria includes clustering the estimated BP distributions and rejecting those BP distributions with i) multiple equally dominant clusters, ii) two clusters that are too far apart, or iii) unacceptable cluster information; and

post-processing the one or more rejected BP distributions to provide a statistical average of an estimated blood pressure.